

REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of October 31, 2005.

Reconsideration of the Application is requested.

The Office Action

In the Office Action mailed, claims 1, 2, and 5-7 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. patent 6,596,143 to Wang et al.

Claims 8-14 were rejected under 35 U.S.C. §102(b) for alleged anticipation by U.S. patent 6,296,752 to McBride et al.

Claim 3 was rejected under 35 U.S.C. §103(a) as allegedly being obvious over Wang and further in view of EP 0558233 to Koenig.

Claim 4 was rejected under 35 U.S.C. §103(a) for allegedly being obvious over Wang and further in view of McBride et al.

Claims 15, 18 and 19 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. patent 6,949,355 to Yamanishi et al. in view of U.S. patent 5,569,367 to Betts et al.

Claim 16 was rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yamanishi et al. in view of Betts et al. and further in view of U.S. patent 5,626,734 to Docoslis et al.

Claim 17 was rejected under 35 U.S.C. §103(a) for allegedly being obvious over Yamanishi et al. in view of Betts et al. and further in view of McBride et al.

In view of the clarifications presented herein, it is respectfully submitted that all claims, claims 1-2, 4-8, and 10-19, are in condition for allowance.

A. Rejection of Claims 1, 2, and 5-7 Under §102(e) Should Be Withdrawn

Claims 1, 2, and 5 through 7 were rejected for allegedly being anticipated by the '143 patent to Wang et al. As described in greater detail herein, it is respectfully urged that upon closer review, it will be seen that the pending claims are patentably distinguishable from the disclosure of Wang et al. Specifically, the branches of traveling wave grids as disclosed by Wang et al. are coplanar, i.e. the grids lie in a common plane. In contrast, the traveling wave grids recited in the independent rejected claims 1 and 5 extend within two

separate and different planes. Specifically, independent claims 1 and 5 have been clarified to recite that the first and second grids are oriented at an angle of 10° to 170° with respect to each other. This recitation specifically excludes the coplanar arrangement of electrode branches disclosed by Wang et al. No new matter is added by these clarifications since support is found in the application as originally filed, such as on page 12, paragraph 0047; page 18, paragraph 0064; and Figs. 7 and 11 for example.

Additionally, independent claim 1 recites two separate substrates for the traveling wave grids. In contrast, Wang's traveling wave grids or branches are disposed on a single substrate. Similarly, independent claim 5 recites two separate substrates in contrast to the disclosure of Wang et al.

Since claims 1 and 5 are patentable over the limited disclosure of Wang et al., so, too, are claims 2 and 6-7, dependent therefrom. Dependent claim 2 recites that the plane of the first traveling wave grid is oriented at an angle of approximately 90° from the second traveling wave grid. This preferred orientation is depicted in Fig. 7 and described in paragraph 0047 of the specification as "most preferably 90° ." This preferred orientation is also depicted in Fig. 11 and described in paragraph 0064 as the grids being "preferably oriented at right angles" with respect to one another. Wang entirely fails to disclose planes of two grids oriented at 90° since Wang only discloses the use of a single or common grid. Claims 6-7 are dependent from claim 5, and so contain all of the recitations of claim 5.

For at least these reasons, it is respectfully submitted that the present rejection under §102(e) should be withdrawn.

B. Rejection of Claims 8-14 Under §102(b) Should Be Withdrawn

Independent claim 8 has been clarified to recite a traveling wave grid system comprising, in part, a point electrode grid that includes a plurality of individually addressable point electrodes that are arranged in patterns resembling concentric circles. No new matter for this aspect is added since support is found in paragraph 0057 and the present application as originally filed. McBride et al. entirely fail to disclose this aspect, instead merely noting an orthogonal array of electrodes in Figs. 6A, 6B, and 7. Claim 9 has been canceled, so its rejection is moot. Claim 10 is dependent from independent claim 8, and so is also believed to be patentable over McBride et al.

Independent claim 11 recites a method for concentrating an agent dispersed within

a fluid medium. Claim 11 further recites applying a control signal to a first portion of a plurality of point electrodes that are disposed in a first row on a substrate. Claim 11 further recites applying the control signal to a second portion of the plurality of point electrodes whereby a region is formed in the medium having a relatively high concentration of the agent. Although McBride et al. disclose two dimensional arrays of individual electrodes such as in Figs. 6A, 6B, and 7, McBride et al. entirely fail to disclose any method of operating such array. The most that McBride et al. disclose in this regard is that "such a plate is particularly useful in providing electrically created asymmetrical barriers which act to change the probable specific path of a given molecule as indicated in Fig. 7," see col. 5, lines 23-26. Thus, McBride et al. fail to anticipate independent claim 11.¹

Claims 12-14 depend from claim 11, and so contain all of the recitations of that claim. Since claim 11 is patentable over the McBride et al. patent, so, too, are claims 12-14.

C. Rejection of Claim 3 Under §103(a) Should Be Withdrawn

The Examiner rejected claim 3 for allegedly being obvious over the previously noted patent to Wang et al. as applied to claims 1, 2, and 5-7, and further in view of EP 0558233 to Koenig.

Claim 3 has been canceled, and so its rejection is moot.

D. Rejection of Claim 4 Under §103(a) Should Be Withdrawn

Claim 4 was rejected as obvious over the previously noted patent to Wang et al. and further in view of the patent to McBride et al.

Claim 4 recites the system of claim 1 further comprising a planar conductor providing a voltage potential with respect to at least one of the first traveling wave grid and the second traveling wave grid to thereby provide a bias field.

Since claim 4 is dependent from claim 1, claim 4 contains all of the recitations of claim 1. As previously noted, claim 1 recites a system for selectively concentrating an

¹ "Anticipation under Section 102 can be found only if a reference shows exactly what is claimed", *Titanium Metals Corp. v. Banner*, 778 F.2d 775 227 USPQ 773 (Fed. cir. 1985); "To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim," *Brown v. 3M*, 265 F.3d 1349, 60 USPQ2d 1375 (Fed. cir. 2001).

agent within a fluid medium. This system comprises in part, a first traveling wave grid having a first substrate, and a second traveling wave grid having a second substrate. Claim 1 has been clarified to further recite that the plane of the second grid is oriented at an angle of from about 10° to 170° with respect to the first grid. Neither of the cited patents teach this particular aspect. Accordingly, dependent claim 4 is patentable over the cited patents.

E. Rejection of Claims 15, 18, and 19 Under §103(a) Should Be Withdrawn

Claims 15, 18, and 19 were rejected as obvious over U.S. patent 6,949,355 to Yamanishi et al. in view of U.S. patent 5,569,367 to Betts et al.

Independent claim 15 recites a system for detecting agents in a flowing fluid medium. The system comprises in part, a filter element, a traveling wave grid, a voltage controller, and an adapter adapted to detect agents in the fluid medium. The detector is disposed in proximity to a region of the traveling wave grid. Yamanishi et al. entirely fail to teach or even suggest the use of a detector for detecting agents in the fluid medium. The Examiner cites the patent to Betts et al. for disclosure of a detector at the exit of an electrode grid.

Claim 15 has been clarified to recite that upon operation, the agents which are collected on the filter element are transported along the traveling wave grid, to the detector. No new matter is added by this clarification since support is found in the application as originally filed, and particularly in paragraph 0063 on pages 17-18 and Fig. 10.

The patent to Betts et al. fails to teach the system as recited in claim 15. Specifically, as shown in Fig. 1, Betts teaches the placement of a detector 12 at the outlet of a fluid stream or output 4. Thus, Betts teaches detecting the concentration of particles in the fluid output, see col. 5, lines 20-35.

In contrast, and as readily depicted in Fig. 10 of the present application, the system of claim 15 detects agents that are collected by the filter element, and then transported by the traveling wave grid to the detector. Betts entirely fails to teach or even suggest this configuration.

In fact, if one followed the teachings of Betts, one would be motivated to use an entirely different configuration. Following Betts, a practitioner would be motivated to position the recited detector of claim 15, in the output flow, downstream of the filter

element, i.e. in stream WF. In such a configuration, the detector would detect agents that passed through the filter element, and so, having a size less than or equal to the pass-through size limit of the filter element.² That configuration is opposite the configuration recited in claim 15. For at least these reasons, the rejection of claim 15 should be withdrawn.

Independent claim 18 recites a method for detecting agents in a flowing fluid medium using a system having a filter element, a traveling wave grid, a voltage controller, and a detector. The method recites positioning the filter element and a traveling wave grid in the flowing fluid medium such that the traveling wave grid is upstream of the filter element. Independent claim 18 further recites collecting agents having a size greater than the pass through size limit of the filter element. The method claim also recites activating the traveling wave grid by selectively applying a control signal from the voltage controller to portions of the electrodes whereby agents collected on the filter element are moved to the detector. And, independent claim 18 recites an operation of detecting the agents moved from the filter element by the traveling wave grid and the controller.

As previously explained, the patent to Betts et al. fails to teach a system configuration in which a detector is utilized to detect agents collected on a filter element and transported to the detector by a traveling wave grid. Method claim 18, as originally filed, expressly recites several operations, each of which distinguishes claim 18 from the patents to Yamanishi et al. and Betts et al. As previously noted, Yamanishi et al. entirely fail to teach or even suggest the use of a detector. Betts et al. merely note the use of a detector for measuring aspects of an output stream. Betts fails to teach positioning a filter element and traveling wave grid in a flowing fluid medium such that the traveling wave grid is upstream of the filter element. Betts also fails to teach collecting agents having a size greater than the pass through size limit of the filter element, and activating the traveling wave grid by selectively applying a control signal from the voltage controller to portion of the electrodes whereby agents collected on the filter element are moved to the detector.

²"A prima facie case of obviousness can be rebutted if the applicant...can show "that the art in any material respect taught away" from the claimed invention." *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997) (quoting *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference,...would be led in a direction divergent from the path that was taken by the applicant." *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999)." *In re Haruna*, 249 F.3d 1327, 58 USPQ2d 1517 (Fed. Cir. 2001)

And, Betts fails to teach an operation of detecting the agents moved from the filter element by the traveling wave grid and the controller. Claim 18 is not rendered obvious by the cited patents.

Claim 19 depends from claim 18, and so contains all of the recitations from claim 18. Since claim 18 is believed to be patentable over the patents to Yamanishi et al. and Betts et al., so, too, is claim 19.

For at least these reasons, it is respectfully submitted that this ground of rejection should be withdrawn.

F. Rejection of Claim 16 Under §103(a) Should Be Withdrawn

Claim 16 was rejected as obvious over the previously noted patents to Yamanishi in view of Betts and further in view of U.S. patent 5,626,734 to Docoslis et al. Claim 16 is dependent from previously noted claim 15 for a system for detecting agents in a flowing fluid medium. Claim 16 further recites that the system comprises a second traveling wave grid having a substrate and a plurality of electrically conductive electrodes disposed on the substrate. Claim 16 recites that the second grid is positioned proximate to the traveling wave grid disposed on the filter element.

Claim 16 depends from claim 15 and so, contains all of the recitations of claim 15. The '734 patent to Docoslis et al. fails to remedy the deficiencies of the patents to Yamanishi et al. and Betts et al. Docoslis et al. fails to teach a system that comprises a detector for detecting agents in a fluid medium, wherein upon operation of the system, agents collected on the filter element are transported by a traveling wave grid to the detector.

For at least these reasons, the rejection of claim 16 should be withdrawn.

G. Rejection of Claim 17 Under §103(a) Should Be Withdrawn

Claim 17 was rejected as obvious over the previously noted patents to Yamanishi in view of Betts, and further in view of the previously noted patent to McBride et al.

Claim 17 is dependent from claim 15 reciting a system for detecting agents in a flowing fluid medium. Claim 17 recites the system of claim 15 further comprising a planar conductor providing a voltage potential with respect to the traveling wave grid to thereby provide a bias field.

Claim 17 depends from claim 15 and so, contains all of the recitations of claim 15. Since claim 15 is believed to be patentable over the patents to Yamanishi et al., Betts et al., and McBride et al., so, too, is claim 17.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1-2, 4-8, and 10-19) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

No additional fee is believed to be required for this Amendment A. However, the undersigned attorney of record hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Deposit Account No. 24-0037.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Mark E. Bandy, at Telephone Number (216) 861-5582.

Respectfully submitted,

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Date

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